DIGITAL EXPERIENCES OF HIGHER EDUCATION STUDENTS IN GHANA: HOW DOES IT COMPARE

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ABSTRACT-The Joint Information Systems Committee (JISC) in 2018 conducted an international pilot study on higher education students' digital experience. The study aimed at examining students' experiences of the higher education digital learning environment. The rationale was that, it is reasonable to understand students' experiences with digital technology in the learning environment to reflect digital provision, digital integration into subject disciplines and to develop students' digital skills for study and living in the 21st century. Questionnaires were distributed to students in 89 higher education institutions (HEIs) in eleven countries including Ghana. In this study, we used univariate analysis. Data from the pilot study assist in interpreting the students' digital lives, their experiences of digital infrastructure in the institutions and digital activities in course. This paper compares results of key metrics of the questionnaire among three countries out of a set of 21 clustered studies of countries that participated in the JISC higher education insight survey. The general question addressed here is: What are the digital experiences of higher education students. We present benchmarked data of Ghana against the UK and Australia and suggest next step for infrastructure, digital integration and skills development. Based on this paper also reviews digital experiences of higher education students in the digital learning environment.

Keywords: Virtual learning environment, students' digital experiences, digital teaching and learning, digital provision, institutional digital technology, student's personal device and uses.

INTRODUCTION

Student's experiences are the sum of their interaction with the institution. It includes application experiences (i.e. interactions between potential students and institutions), academic experiences, campus experience and graduate experiences (Jones, 2017; Temple, Callender, Grove & Kersh 2014). Like Temple, et al. (2014), JISC conceptualised students digital experience in the learning environment to include four components; access to and use of personal devices, experiences with institutional devices, experience of digital technology in the context of course activities as well as the students' attitudes towards digital learning (Newman & Beetham, 2017). In this context student digital experience denote the interactions with personal and institutional digital technologies in the context of the academic program to include extra-curricular activities which students expect as part of their training in the educational setting for effective participation in the digital society.

As digital technologies and capabilities continues to alter lives at an exponential rate and becomes more and more ingrained in people's day to day lives, it will continue to be a key asset that HEIs must make the most of to help with educational goals such as improving learning (Becker, Pasquini, & Zentner, 2017). It is also the responsibility of HEIs to prepare students for the changing job market as we enter the fourth industrial revolution. Enabling student contact with new and emerging technologies as part of learning will help equip them to adapt to the next wave of digital innovation (Fadel, Bialik & Trilling, 2015). The study therefore compares what the students' digital experiences are in the Ghanaian context with the UK and Australia. We believe that this will provide insight to HEIs in Ghana to re-evaluate themselves and improve digital provision and experiences of students in learning that will allow the Ghanaian student to flourish in the global economy. In other words, the study will enable HEIs in Ghana to identify where they currently are, where they are doing well and where there is scope for improvement.

HE students are also inclined to make confident suggestions if they could compare their current experience with digital learning at another university. They want their experiences to be "triangulated with other sources of data (student digital experience data) about what is possible and by looking at ways that other universities support digital learning" (Newman, Beetham & Knight, 2018). The study will allow benchmarking the results with some institutions in the UK and Australia in the JISC study and the sharing of best practices with one another. This will help guide the actions of the institutions and faculty to improve students' digital experiences and capabilities (Gill & VanBoskirk, 2016)

The JISC-HEIS is comprehensive and versatile approach to systematically determine the students' digital experience in context of their learning environment. JISC is a membership base organisation that allows institutions to subscribe and often provide digital solutions for HEIs and further education and research. The JISC-HEIS provide tools (for example standardised survey tool, digital advice, guidance and support) that primarily allow institutions to understand and enrich the digital experiences and skills of students in the learning environment. The digital experience insight survey allows member institutions to "collect valid, representative and actionable data from their students and to support a process for engaging students in shaping their digital experience." (Newman, Beetham & Knight, 2018). JISC provides access to benchmark data, allowing participating institutions to compare their own results against all data of other institutions in the online system. This allows the institutions to respond to the changes in students' digital expectations and experience of the digital learning environment; improve their experiences to enable them to flourish in the digital world; engage learners in discussions about the digital learning environment; and to gather intelligence about their changing needs. It also aimed at helping the institutions to create an optimum digital learning environment.

The JISC-HEIS also allows HEIs to articulate the digital attributes, practices, skills and understanding of higher education students. It provides a credible dataset that enable HEIs to map digital capabilities development across the curriculum, inform the development of learning and teaching support materials, and identify intended learning outcomes (Jisc, 2014). The project according to Payton (2012) dwells on how educators embed authentic academic digital task and practices meaningfully in the subject disciplines and how new tools and skills might be usefully re-contextualised in an academic setting. It also highlights the elements of digital capabilities that are essential for academic and professional situated practices, which support diverse and changing technologies and explores how HEIs, educationists, support staff to enhance students' digital experiences on a foundation of access and functional skills (Beetham, Newman & Knight, 2018a).

Beyond the UK, several institutions including University of South Africa (UNISA) and other universities in the Australasia have been members of the JISC-HEIS project to understand how their students feel about their (the institutions) digital learning environment. In 2018, over 87 higher education institutions in the UK Australasia and Africa (Ghana) participated in the project to ascertain what their students' views are with regard to their digital learning environment (Beetham, Newman, & Knight, 2018a; Beetham, Newman, & Knight, 2018b). The rationale was to gather evidence about the institution's digital environment, make informed decisions, target resources for improving learning and digital capability development. This study was a part of 2018 project purposefully to gather primary data to explore the gap if any of the digital experiences of HE students in Ghana to ascertain what areas the universities in Ghana needs to support and develop.

METHODOLOGY

The survey instrument that was used in this research was an intact survey developed by the JISC organisation and is referred to as the 'Higher education digital insight service'. Earlier studies

suggest that students in higher education institutions own and use digital technologies to support their learning (Dahlstrom, Christopher, Grajek, & Reeves, 2015; OECD, 2015). Accordingly, this study seeks to compare seven key metrics (of the survey) on how students are using digital technologies in universities in Ghana, UK and Australia. The survey was delivered online with the BOS 'Online system'. The survey link was distributed to the student through their email, SMS and students' social media networks such as group WhatsApp's and Facebook sites. The link was also published on the institutional websites. The quantitative study adopted census survey. Data was collected from students in three leading universities in Ghana. The sample was made of 37125 final year undergraduates and postgraduate students between the ages 15 and 62years. Some 1937 students responded to the survey representing 5.2% of the total sample. This was made up of 57% male students and 43% female student; 86% of the respondents were final year undergraduate students and 14% postgraduate students.

RESULTS

Access to digital technology carries a potential to support learning in the learning environment (Dahlstrom, Christopher, Grajek, & Reeves, 2015). We inquired about students' ownership and use of digital tools. As might be expected the percentage difference in the devices student have at their fingertip to support learning is quite significant. See Table 1.

Table 1: Student Ownership of digital tools

	Option	Ghana	UK	Australia
Across institution: digital Ownership	Printer	7.3%	51.6%	61.2%
	Smartphone	74%	83.6%	81.8%
	Tablet/iPad	23.1%	34.9%	30.5%
	Laptop Computer	61.9%	93.5%	94%
	Desktop Computer	10%	28.0%	31.9%

The result in Table 1 shows that students' access to digital technologies vary considerably by country with laptop and smartphones topping the list. In all 74% of students in Ghana owned smartphone, compared to 83% for students in UK and 81.8% for students in Australia. Students from Australia and UK own more laptops with nine in ten students owning laptops compared to six in ten for students in Ghana. Some 23.1% of students in Ghana owned tablets, compared to 34.9% and 30.5% for students in Australia and England respectively. Also, 7.3% of Ghanaian students owned printers compared to 51.6% for Australian students and 61.2% for UK students.

Students were asked about their experiences with the institutional resources and devices. Results shown in Table 2.

Table 2: Across institution digital Provision

	Option	%	UK	Australia
Across institution: Digital Provision	Desktop computer	47.6%	40.2%	40.4%
	Laptop computer	13.2%	11.8%	9.8%
	Tablet/iPad	13%	4.2%	3%
	Smartphone	12.7%	4.8%	5.8%
	Printer	13%	39%	41%

From Table 2, it can be seen that more students in Ghana have access to institutional desktop computers (47.64%) compared to 40.22% and 40.3% for UK and Australia students respectively. However access to institutional printers is low among Ghanaian students. Only about one in ten

students in Ghana have access to institutional printers compared to about four in ten for UK and Australian students.

Helping students with their digital tools and skills will enable them to operate more effectively in the digital learning environment. The study also inquired about where students turn to first when they needed support with digital tools or skills. The result is shown in Table 3.

Table 3: Where students turn to for digital support

	Option	Ghana	UK	Australia
Where students turn to first when they needed support with their digital devices or skills	Lecturers on my course	10.7%	8.3%	7.2%
	Other Univ. support	3.4%	11.1%	9.5%
	Fellow students	48.2%	38%	30.7%
	Friends and family	15.2%	12.7%	13.1%
	Online information	22.5%	29.8%	39.6%

Table 3 shows that more students in Ghana (48.2%) turn to 'fellow students' first when they needed help with digital skills or tools compared to students in UK (38%) and Australia (30.7%). Students from Australia (39.6%) turn to seek online information first when they needed help with their digital compared to their counterparts in UK (29.8) and Ghana (22.5%). On the other hand more students in the UK (11.1%) turn to other university support compared to students in Australia (9.5%) and Ghana (3.4%), however these are in small percentages.

Comparably 49.6% of students in Australia and 42.5% of students in the UK said that their institutions help them to stay safe online compared to 22.83% of Ghanaian students.

Students were asked to rate the quality of digital provision in their institutions. Quality of digital provision in the institutions included their experiences with the institution's hardware, software, and learning environment. Overall result shown in figure 1.

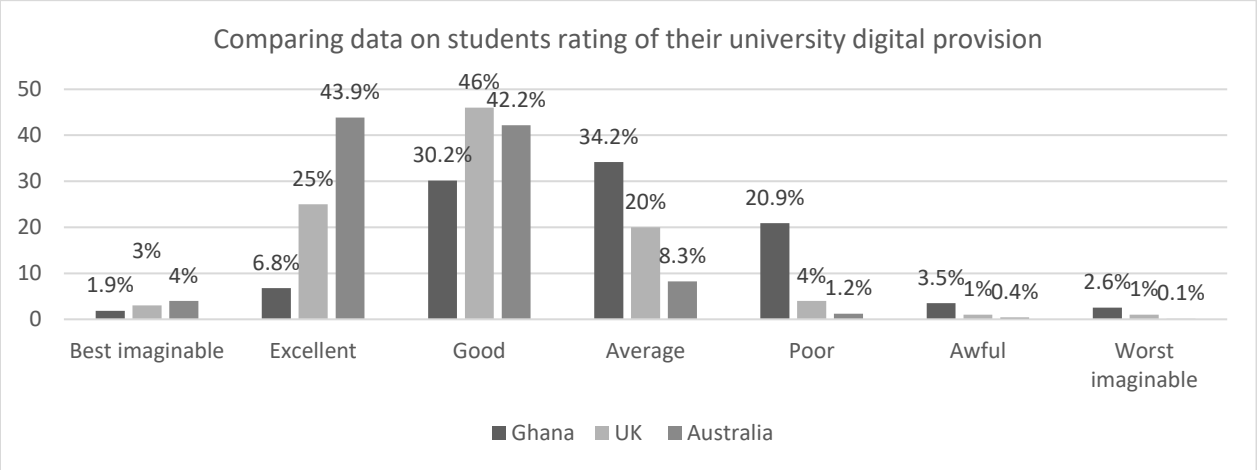

Figure 1: Quality of digital provision in the institutions

On average 38.9%, students in Ghana rated their institutions digital provision above average. The students chose to rate digital provision in the institution as good, excellent and best imaginable. Some 74% of students in the UK and 90.05% of students in Australia said their institutions digital provision is above average. Less than 1.7% of students in Australia and 6% of students in

Australia rated digital provision in their institutions' as below 'average' choosing to rate as 'poor', 'awful' or 'worst compared to 27% for students in Ghana.

VLE/LMSs are more useful for students in courses in the UK and Australia compared to those in Ghana. Students were asked how much they agreed with five statements about the VLE on their course. The result is shown in Table 4.

Table 4: students' experiences with VLEs

	How much do you agree with the following statements about our VLE?	Ghana	UK	Australia
Across institution students' experiences with VLEs	It is well designed	38.40%	56.64%	60.59%
	Online assessments are delivered and managed well	40.27%	58.62%	62.81%
	I rely on it to do my coursework	31.13%	74.13%	86.64%
	I regularly access it on a mobile device	39.44%	62.06%	53.45%
	I enjoy using the collaborative features	27.25%	27.16%	34.01%
	I would like it to be used more by my tutors	44.29%	43.08%	47.63%

The result in Table 4 shows that some 86.6% of students in Australia rely on VLE/LMS to do their course work compared to 74.1%% for UK students and 31.1% for students in Ghana. Also, 60.6% of Australian students stated that the VLEs are well designed compared to 50% of students in the UK. Only 38% of Ghanaian student agreed to this statement. About 53.5% of Australian students agreed that they are able to access their institutions VLEs on their mobile devices, a decrease of fourteen percentage points from the 39.4% of Ghanaian students who said they do. However, more students in Ghana (44.3%) and Australia (47.6%) would want VLEs to be used more on their course compared to students in the UK (30%) who would.

Students were asked how much they agreed with five further statements about the use of digital on their course. Table 5 shows the result.

Table 5: Support for developing digital capabilities

	Support for developing digital capabilities	Ghana	UK	Australia
Across institution: Support for developing digital capabilities	Digital skills are important in my chosen career	57.9%	69.1%	73.8%
	The software used on my course is of industry standard and up to date	27.1%	59.6%	60.4%
	I have regular opportunities to review and update my digital skills	28.8%	36.6%	40.1%
	My course prepares me for the digital workplace	57.9%	69.1%	44.6%

The result shown in Table 5 shows that more students in Australia (73.8%) agreed digital skills are important in their chosen career compared to 69.1% for UK students and 57.9% for Ghanaian students. Also, more students in Australia (40.1%) agreed they have regular opportunities to review and update their digital skills in the learning environment compared to 36.6% for UK students and 28.8 for students in Ghana. Similarly, about six in ten students in Australia and UK opined that the software used on their course is of industry standard and up to date compared to Ghana (27.1%). Strangely, less than half of the students in Australia agreed that their course prepares them for the digital workplace compared to more than half for UK and Ghanaian students.

Students were asked to provide an overall rating of the quality of digital teaching and learning on their course (see Figure 2).

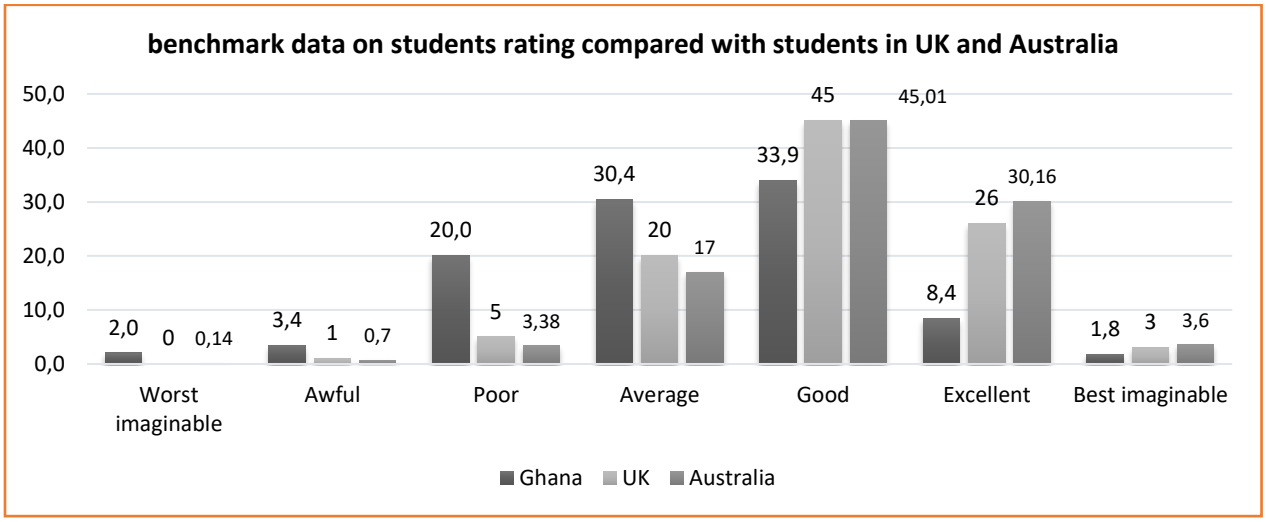

Figure 2: Quality of digital teaching and learning

Overall (see figure 4.46) students in Ghana (33,9%) rated digital teaching and learning in the universities as good, 20% of the students said the universities digital teaching was poor and 2.0% it was worst imaginable. On the other hand, 41% of students in Ghana rated digital provision in their institution above average compared to 81.2% for Australian students 74% for students in the UK. Almost none of the students in UK and Australia rated their institutional digital teaching and learning as awful.

DISCUSSION AND CONCLUSION

The study benchmarked seven key matrix of students' digital experiences among HEIs in Ghana, UK and Australia. The purpose was to provide insight into how students use institutional digital technologies to support their learning. We identified that student experiences with digital technologies for learning are now becoming more important for all students. However, some interesting differences were identified. For example, Higher proportion of students in Australia and UK had more access to digital devices compared to Ghanaian students. This support earlier study by Galanek, Gierdowski and Brooks, (2018) which suggest that while device ownership tells us a lot about the devices students have at their fingertips, it introduces socioeconomic bias into the measure in favour of those in the developed economy in this case UK and Australia who have higher incomes than students Ghana. in addition to their own devices, more students in Ghana prefer access and use of institutional digital devices to support their learning. However, they feel that digital provision in the intuitions are not adequate and that digital teaching and learning is low on their course. Only few of the students' rated digital provision and digital teaching and learning in the institutions above average compared to their counterparts in the UK and Australia. We also identified that students in Ghana are more likely turn to fellow students first for help with their digital tools and skills. Developing an institutional digital infrastructure, which creates a supportive, adaptable and secure digital environment, is critical for developing students' digital experiences and capabilities. HEIs in Ghana are therefore expected to come out with strategies, policies and processes that will set the direction for student engagement with the institutional digital resources and tools and development of their capabilities.

REFERENCES

Becker, S. A., Pasquini, L. A., & Zentner, A. (2017). *2017 Digital Literacy Impact Study: An NMC Horizon Project Strategic Brief* (pp. 1-24). The New Media Consortium.

Beetham, H., Newman, T., & Knight, S. (2018a). *Digital experience insights survey 2018: findings from students in UK further and higher education* (pp. 1-76). Bristol: JISC. Retrieved from http://repository.jisc.ac.uk/6967/1/Digital_experience_insights_survey_2018.pdf

Beetham, H., Newman, T., & Knight, S. (2018b). *Digital experience insights survey 2018: findings from Australian and New Zealand university students* (pp. 1-34). Bristol: JISC. Retrieved 11 August 2019, from https://apo.org.au/sites/default/files/resource-files/2019/02/apo-nid224091-1337151.pdf

Dahlstrom, E., Christopher, D. B., Grajek, S., and Reeves, J. (2015). *ECAR Study of Students and Information Technology, 2015*. Research report. Louisville, CO: ECAR, December 2015.

Gill, M., & VanBoskirk, S. (2016). The digital maturity model 4.0. *Benchmarks: Digital Transformation Playbook*.

JISC (2014). Building Digital Capabilities Project 2014-16. London: JISC. Retrieved 20 August 2018, from https://www.jisc.ac.uk/rd/projects/building-digital-capability

Jones, R. (2017). The student experience of undergraduate students: towards a conceptual framework. *Journal of Further and Higher Education*, *42*(8), 1040-1054. doi: 10.1080/0309877x.2017.1349882

Newman, T., & Beetham, H. (2017). Student digital experience tracker: The voice of 22,000 UK learners. *Bristol, UK: JISC*.

OECD (2015). *Students, Computers and Learning: Making the Connection*, *PISA*. OECD Publishing, Paris, September 15, 2015.

Payton, S. (2012). Developing digital literacies. Retrieved 4 April 2018, from http://www.jisc.ac.uk/media/documents/publications/briefingpaper/2012/Developing_Digital_Literacies.pdf

Temple, P., Callender, C., Grove, L., & Kersh, N. (2014). Managing the student experience in a shifting higher education landscape. *The Higher Education Academy*, *1*(1), 1-25.